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Project Name: LHC Cryogenic Distribution Box Model

Customer: LHC Project

Date: from 10/01/01 to 10/30/01

Project team members:



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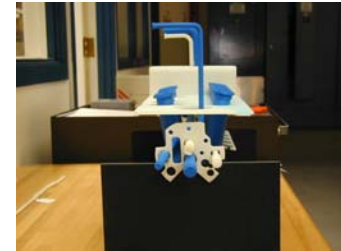
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Project:

The cryogenic technology chosen for the LHC uses superfluid helium. 8 Cryogenic Distribution Boxes will be used in the cooling system. The assembly of these boxes requires careful planning.

DesignWorks' Rapid Prototyping capability was called in to create a scale model to be used as a communication tool for collaborators, vendors and assembly teams.

The model will also be used for design verification and assembly planning of leak-tight piping junctions into the distribution boxes.

The Challenge:

The Distribution Box assembly is very large (about 6 feet across).

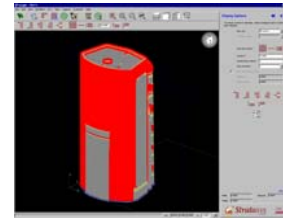
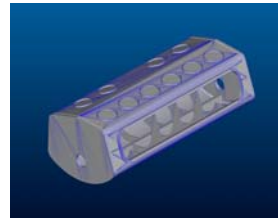
The CAD assembly has over 2800 parts. The model must be large enough to be useful, but small enough to be handled and transported.

Many parts in the assembly have very small features that when scaled down become too small to be useful. This will require simplification of the assembly to facilitate a practical model in the time frame required to complete the project.

The Solution

The Fused Deposition Modeler (FDM) was utilized to build the model.

This required a team approach to simplify the CAD models and feed parts to the FDM to keep it running almost 24 hours a day to meet the schedule. Hand finishing and assembly completed the model within budget and schedule.



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12/4/01